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ABSTRACT

A survey of 1,080 senior economics majors at 48 colleges and universities in the United States is reported. Questionnaires were administered in classes, by mass mailings, or through economics clubs. Although institutions were selected to provide a representative distribution of respondents, variations in response rates created too few participants from the West, Southwest, and larger institutions; too many from private schools; and too few from public institutions. Due to sample selectivity, students were also high academic achievers. Students' main undergraduate goals were to develop the ability to think clearly and to do self-directed learning. Most majored in economics because of their interest in the subject and a view that an economics major would provide them better employment opportunities. An analysis of students' academic performance revealed that both quantitative and verbal skills were important. Writing term papers appeared to enhance achievement on the economics Graduate Record Examination (GRE). No discernible effect of high school economics courses on participants' grade point average or economics GRE scores existed. Almost all students in the sample planned to continue their education beyond the bachelor's degree, but over half intended initially to work for a few years in general management, sales and marketing, analysis, research, and economist positions. (KC)

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ECONOMICS MAJORS IN THE U.S.: THEIR CHARACTERISTICS, EDUCATIONAL AND CAREER GOALS, REASONS FOR MAJORING, AND PERFORMANCE

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*The authors are Professor of Economics and Graduate Student in Economics at Vanderbilt University, respectively. This project received enormous encouragement and aid from Allen Kelley, W. Lee Hansen, Arthur Welsh, Rendigs Fels, John Soper, James Wilkinson, Kaye D. Evans and Katherine M. McElroy. Phillip Saunders, Michael Salemi, Marianne Ferber, Jum Nunnally, Robert Highsmith, John Sumansky, Stephen Buckles, and J. S. Butler advised us on the design of the study. We are most grateful to the 48 professors who distributed and collected the survey and the 1,080 students who completed it.

Paper presented at the Annual Meeting of the Joint Council on Economic Education (Kansas City, MO, October, 1982).

In order to learn more about undergraduate students who major in economics, the American Economic Association's (AEA) Committee on Economic Education and the Joint Council on Economic Education (JCEE) have sponsored a comprehensive study of the economics major in the U.S.[1] This article reports what we have learned from a survey of 1,080 individual senior majors in economics at 48 colleges and universities. An earlier report presented the results from a survey of 546 departments that offered a bachelor's degree with a major in economics.[2]

The information in the present article describes the students who major in economics today. It reports their socio-demographic characteristics, their views concerning the basic goals of undergraduate education, their reasons for majoring in economics, what they think of their experience as an economics major, their career and future education plans, and an analysis of the importance of various skills and experiences for succeeding in economics. We expect that this information will help individual departments to identify strengths and weaknesses in their own students and programs.[3] The information may be useful to the economics profession more generally by revealing the educational goals and career plans our students contemplate. Finally, the data collected in our survey are available (within appropriate confidentiality limits) for the purpose of subsequent research on economics education.[4]

The student questionnaire was developed over several years with the advice of numerous economists and a psychologist. It was pretested at a half dozen colleges. It requires approximately 15 minutes for a typical student to complete. Respondents were invited to report their name and permanent address to facilitate possible follow-up studies, but were

also urged to complete the questionnaire even if they preferred to remain anonymous. Seventy-one percent of the respondents provided their name and address.

The questionnaire was administered by a faculty member at each of 50 colleges and universities. The sample institutions were not selected randomly. Rather they were chosen to provide a representative distribution of respondents on six criteria: region of the country, total institution enrollment, exclusive gender of students, predominant race of students, private or public control, and degree level in economics (whether they offer graduate degrees). The percentage of respondents in each category of these criteria is reported in column (6) of table 1. Table 1 also reports the distribution of economics degrees conferred across these categories based on National Commission on Educational Statistics (NCES) data for 1978 (the most recent year for which data were available when the study was done).

Sample schools were selected in such a way that their enrollments generated approximately the same distribution of students across the criteria as did 1978 degrees conferred (see column (4) of table 1). Variation in response rates caused deviations between the actual sample distribution and the goal. Our sample includes too few students from the West and Southwest and from the largest schools. There are too many students from private schools and too few from public institutions. These are the only statistically significant (Chi-Square test) deviations between the distributions in column (1) and column (6) of table 1. In general, the students in our sample distributed themselves approximately as the degree recipients in 1978 did. Because the survey

Table 1. SAMPLE STATISTICS FOR SPRING 1981 SURVEY OF SENIOR ECONOMICS MAJORS AT 50 COLLEGES & UNIVERSITIES

	Percentage distribution of U.S. economics bachelor's degrees conferred 1978[a]	Number of schools in sample[b]	Number of 1980-81 senior economics majors at sample schools[c]	Percentage distribution of 1980-81 senior economics majors at sample schools	Number of respondents	Percentage distribution of respondents
	(1)	(2)	(3)	(4)	(5)	(6)
Region						
1) North Atlantic	45.4	15	1120	40.6	442	40.9
2) Great Lakes & Plains	20.7	15	903	32.7	259	24.0
3) Southeast	12.6	10	316	11.5	262	24.3
4) West & Southwest	21.2	10	419	15.2	117	10.8
Enrollment Range						
1) 0-999	4.3	2	57	2.1	35	3.2
2) 1000-9999	44.2	30	1278	46.3	676	62.6
3) 10000+	51.2	8	1423	51.6	369	34.3
Sex						
1) Male	1.3	1	40	1.4	30	2.8
2) Female	2.8	3	138	5.0	84	7.8
3) Coed	95.9	46	2580	93.6	966	89.4
Control						
1) Public	52.2	23	1473	53.4	385	35.6
2) Private	47.1	27	1285	46.6	695	64.4
Offering Level						
1) No Graduate econ	16.5	12	464	16.8	230	21.3
2) Graduate program in economics	83.5	38	2294	83.2	850	78.7
Predominate Race						
1) White	98.4	49	2693	97.6	1073	99.4
2) Other	1.6	1	65	2.4	7	0.6

[a]Based on National Commission on Educational Statistics data.

[b]Fifty schools were initially sampled; 48 schools provided at least one usable response.

[c]Based on Fall 1980 questionnaire to departments (see Siegfried and Wilkinson, 1982).

is not based on a random sample we generally avoid formal statistical testing.

The faculty members who processed the questionnaires at the sample institutions used various distribution methods, ranging from circulation in selected classes to mass mailings or distribution through "economics clubs." This contributed significantly to the variation in response rates.

A more important characteristic of the sample probably affects the quality of the included students. We believe that our sample is substantially above average academically. There are two reasons for this bias. First, in selecting the sample institutions, we relied for administering the questionnaire on faculty members who were known to the project staff, members of the AEA Committee on Economic Education or the JCEE staff. Most of these individuals are actively engaged in research and, it turns out, located at academically stronger colleges and universities among their type of institution. This is revealed clearly by the fact that the liberal arts colleges in the sample all were classified as Liberal Arts I colleges by the Carnegie Commission (see table 2). The distinction between Liberal Arts I and Liberal Arts II in the Carnegie Classification is academic quality.

Second, among those institutions selected for the sample, we would naturally expect a response bias in favor of the more successful students. Those who had a more favorable experience in their major would be more anxious to tell us about it. These two biases combine to produce a sample of substantially above average economics majors. As evidence of this, our sample's estimated average combined SAT scores is

1,216 in contrast to the nationwide average for graduating seniors (in all disciplines) in 1981 of only 890.

The survey was conducted from March through May of 1981. The statistics apply to those senior majors graduating in May or June of 1981.

To aid schools in comparing their economics majors to those in similar institutions we used the Carnegie Code Classification developed by the Carnegie Commission on Higher Education (1973). The school classifications that we adopted and the number of reporting sample institutions and students in each are displayed in table 2.

General Student Characteristics

Students were excluded from the sample unless they expected to graduate at the end of the Spring 1981 semester. Not all students were in their fourth year, however. Of the 1,080 students, 10 earned their degree in three years, 69 took five years, two took six and eight years respectively and nine did not answer the question. The average age of the students is 21.8 years. Eighteen percent transferred between colleges, three percent are of foreign nationalities, five percent are non-whites and thirty-six percent are women (in contrast to the twenty-nine percent of 1981 economics graduates that are female reported by the 546 departments; see Siegfried and Wilkinson, p. 128). The students averaged 589 on the verbal SAT examination and 627 on the quantitative SAT examination, for a combined SAT score of 1,216.

The general student characteristics are reported by (Carnegie Code) type of institution in table 3. There appear to be fewer transfer students and more women among senior economics majors at liberal arts colleges. Non-white economics majors are twice as abundant at

Table 2. CARNEGIE CODE CLASSIFICATIONS

Number of Sample Institutions	Number of Students	Classification	Description
20	564	Research and Doctorate	Institutions awarding at least 10 Ph.D.'s annually
11	195	Comprehensive	Minimum of 1,000 students; fewer than 10 annual Ph.D.'s and at least one professional program plus liberal arts
17	321	Liberal arts	Liberal arts college

Table 3. GENERAL STUDENT CHARACTERISTICS OF SENIOR ECONOMICS MAJORS BY TYPE OF INSTITUTION

	All Institutions	Research & Doctorate	Compre-hensive	Liberal Arts
Transfer students	18.3%	19.4	25.1	12.2
Women	36.5%	32.6	32.8	45.9
Foreign Nationalities	3.3%	3.2	4.6	2.8
Non-whites	4.7%	3.8	7.8	4.4
Attended private high school	24.1%	25.4	17.1	26.0
Took high school economics	29.8%	27.2	33.0	32.5
SAT Verbal	589	590	590	586
SAT Quantitative	627	624	629	631

comprehensive institutions. SAT scores are remarkably similar acorss the various types of colleges.

The sample students come from well-educated families. Forty-seven percent of their mothers and 68 percent of their fathers had a bachelor's degree. Advanced degrees were held by 15 percent of their mothers and 38 percent of their fathers. Forty percent of the students had at least one parent working in business management. Although one or both of the parents of only 0.7 percent of the students worked as an economist, at least one parent of 1.8 percent of them had an advanced degree in economics.

Twenty-four percent of the students attended a private high school. While in high school, either public or private, 30 percent took an economics course. The high school economics course appears to be substantially more than a course in personal finance. Seventy-seven percent of the students reported that they covered supply and demand analysis in their high school course; 48 percent covered basic macroeconomic issues; 38 percent were exposed to an institutional description of the U.S. economy; 22 percent learned some economic history; 19 percent covered the concepts of elasticity and marginal analysis; and 14 percent were taught comparative economic systems. Only about 25 percent of the students reported covering personal finance issues such as filling out tax forms in their high school economics course.

The Purpose of Undergraduate Education

Undergraduate education utilizes student time and effort, faculty time and effort, various capital goods such as books and classrooms, and different pedagogical techniques (technologies) to produce a set of

outputs (Siegfried and Fels). More can be accomplished if those who control the various inputs all agree on the value of the various outputs. Education, however, is an area where there is considerable disagreement about goals.

In order to provide insight regarding the extent to which faculty and students agree on the goals of undergraduate education, we asked the students a series of (mostly) identical questions about educational goals that had been asked of faculty in a 1979 survey by the Higher Education Research Institute at UCLA.[5] Both faculty and students were provided four response options, ranging from not important to essential for each goal. The fractions responding with either of the highest two options are tabulated in table 4.

The institutions included in the faculty survey do not correspond to the institutions in our student survey. We did, however, limit the reported faculty responses to economics faculty. In general the faculty rated almost all of the goals of undergraduate education as being more important than the students did. Because the absolute levels of responses may be sensitive to the method of administering the questionnaire, to contiguous questions on the survey forms, or to the particular sample of schools at which the two questionnaires were distributed, and because we are most interested in the extent of agreement on goals between faculty and students, the faculty responses were standardized to the same mean value as the student responses.

There are two goals which the faculty think are more important than the students: (1) mastering knowledge in a discipline, and (2) preparing for employment. The students rate three areas much higher than do the faculty: (1) developing research ability, (2) providing for

Table 4. PURPOSE OF UNDERGRADUATE EDUCATION

Purpose	Percentage Responding Very Important or Essential*					
	Faculty n=270	Faculty Standardized+ n=270	All Students n=1080	Research & Doctorate School Students n=562	Comprehensive School n=193	Liberal Arts College n=320
Develop Ability to Think Clearly	84.4	99.2	94.0	93.4	93.3	95.9
Increase Ability to do Self-Directed Learning	66.3	81.5	80.1	78.4	78.3	86.0
Develop Creative Capacities	58.9	74.1	75.7	75.0	75.7	78.1
Master Knowledge in a Discipline	76.3	91.5	73.1	74.0	75.3	72.5
Basic Appreciation of the Liberal Arts	54.9	70.1	70.8	65.5	69.0	81.9
Provide Tools for Critical Evaluation	51.5	66.7	65.2	66.1	64.7	65.3
Achieve More Self-Understanding	26.6	41.8	62.2	62.6	62.7	62.0
Prepare for Graduate Education	48.5	63.7	60.3	59.9	61.7	60.5
Prepare for Professional School			60.0	60.1	58.5	61.3
Prepare for Employment	60.0	75.2	58.3	63.4	61.6	48.7
Develop Responsible Citizens	44.9	60.1	53.7	55.4	51.8	52.4
Provide Skilled Human Resources	28.1	43.3	51.4	57.5	48.5	43.8
Provide for Emotional Development	17.4	32.6	49.0	47.1	50.8	51.9
Develop Moral Character	28.1	43.3	47.3	48.7	43.5	47.8
Develop Research Ability	17.8	33.0	45.7	45.4	43.7	48.8
Prepare to Operate Own Business	NA	NA	22.6	18.7	21.7	19.3
Prepare for Family Living	12.2	27.4	20.8	23.0	21.2	17.1
Develop Religious Beliefs	3.7	18.9	11.4	13.8	10.9	7.5

*The response options were not important, somewhat important, very important, and essential.

+Faculty responses were standardized by adding the difference (15.2) between the mean value for faculty responses (42.1) and the mean value for student responses (57.3) to the 15 questions common to both surveys.

NA is not asked.

emotional development, and (3) achieving more self-understanding. It is surprising to find the faculty more interested in students' preparation for employment and the students more interested in developing research ability.

There is relatively little difference among the goals of students at the various types of institutions. Students at each type of institution rate developing the ability to think clearly as the most important goal of undergraduate education, followed closely by increasing their ability to do self-directed learning, developing creative capacities, mastering knowledge in a discipline and obtaining a basic appreciation for the liberal arts. The development of religious beliefs and preparations for family living are considered the least important objectives of undergraduate education. Students at liberal arts colleges appear to place a greater emphasis on obtaining a basic appreciation for the liberal arts (no surprise) and increasing their ability to do self-directed learning. They consider preparation for employment to be a less important goal of undergraduate education than do students at research and doctorate, or comprehensive universities.

The Decision to Major in Economics

All students in the sample are economics majors. However, they did not all make that decision at the same stage in their educational career. Twelve percent report that they had decided to major in economics before arriving at college; 19 percent decided in their Freshman year; 46 percent in their Sophomore year; 20 percent in their Junior year; and 3 percent in their Senior year. Students who did better on the quantitative portion of the SAT examination and students whose parents hold advanced degrees in economics elected to major in

economics sooner than other students. There is no relationship between grade point averages, SAT verbal examination scores or parents' jobs as economists and the time when a student elects to major in economics.

Table 5 reports the importance students attached to various reasons for majoring in economics. Interest in the subject, improved prospects for employment, practical knowledge for decision making, and preparation for professional school are the most popular rationales. The advice of parents and friends, departments' research reputations and grading standards are the least common reasons. Even at research and doctorate universities only five percent of the students admit to considering the research reputation of the department as being very important in their decision to major in economics.

The teaching reputation of the department appears to have a greater influence on curriculum choice among liberal arts college students, and program flexibility and complementarities with another major are relatively more important to students at research and doctorate universities. But overall there is a remarkable similarity in the ranking of factors that influence decisions to major in economics among students at various types of institutions.

An earlier report from this project (Siegfried and Wilkinson) examined the influence of certain curriculum design factors on students' choice of major. The empirical results suggest that only one major curriculum factor affects the number of students who major in economics--whether or not there is an undergraduate business administration degree available at the same institution. The presence of a competing business degree was so overwhelming that it virtually would wipe out an economics program, everything else being the same.

Table 5. IMPORTANCE OF REASONS FOR MAJORING IN ECONOMICS

Reason	Percentage of Students Responding "Very Important"*			
	All Institutions n=1080	Research & Doctorate n=564	Comprehensive n=195	Liberal Arts n=321
Interest in the Subject	72.1	70.6	75.4	73.2
Better Prospects for Employment	45.2	42.0	45.6	50.5
Practical Knowledge for Decision Making	35.2	35.3	37.9	33.6
Preparation for Professional School	33.2	35.3	28.7	32.4
Favorable Impression of Faculty	31.3	30.0	31.8	33.6
Challenged by the Analytical Method	30.6	29.3	31.3	33.3
Better Prospects for Higher Earnings	30.0	28.5	28.2	33.6
Complement to Another Major	23.8	26.4	21.5	17.1
Teaching Reputation of the Department	20.3	16.7	16.9	28.7
Program Flexibility	15.1	20.9	10.8	7.5
Performance is Better in Economics Courses	11.7	13.5	11.8	8.4
Preparation for Graduate Study	7.4	6.9	10.8	6.5
Parents' Advice or Example	6.9	6.2	7.2	7.8
Advice of Friends	4.1	4.4	3.1	4.0
Research Reputation of the Department	3.8	4.8	3.1	2.5
Can Earn Higher Grades in this Department	2.4	2.8	2.1	1.9

*The response options were irrelevant, somewhat important and very important.

Evaluation of Economics Programs

The grade point average (GPA) of the students in the sample is 3.23 for their economics courses and 3.18 overall (on a four point basis). The women in the sample have an overall GPA about 0.1 higher than the men, but both men and women have equivalent GPAs in economics. There is no difference between U.S. and foreign students on either the overall or economics GPA. There is no difference between whites and non-whites in the overall GPA, but a substantial 0.2 advantage for whites appears in the economics GPA.

The average student has had about half of one economics course taught primarily by a graduate teaching assistant who met a majority of the classes. But the use of graduate teaching assistants varies considerably by type of institution. The typical senior at a research and doctorate university had 0.9 classes taught by a teaching assistant; the comparable number for comprehensive institutions is 0.4 and for liberal arts colleges it is only 0.1.

The typical senior major has written 4.5 term papers of 5 or more pages in economics courses. The standard deviation of 3.5 term papers indicates considerable variation in students' writing experiences.

A large number of students had taken the standardized admission examinations for graduate and professional schools by the time the survey was completed. Mean scores are reported in table 6. The extremely high academic talents of the sample students are again evident in their strong performance on these examinations.

The relatively large number of students taking the economics GRE examination (13 percent) is caused by several institutions in our sample that require all graduating seniors to take this test as a senior

Table 6. MEAN SCORES ON STANDARDIZED GRADUATE AND PROFESSIONAL SCHOOL ADMISSIONS EXAMINATIONS, 1980-81

Examination	Nationwide Mean Score	Senior Economics Major Sample				
		Mean Score All Institutions	Mean Score Research & Doctorate	Mean Score Compre-hensive	Mean Score Liberal Arts	Sample Size All Institutions
Graduate Record Examination: Verbal	469	571	581	550	593	123
Graduate Record Examination: Quantitative	533	652	659	639	673	122
Graduate Record Examination: Analytical	498	644	651	628	650	105
Graduate Record Examination: Economics	606	624	661	658	613	142
Graduate Management Admission Test	468	585	588	565	591	306
Law School Admission Test	550	643	645	660	635	246

comprehensive examination. Thus the sample of students taking the economics GRE likely includes some who have no intention of applying for admission to graduate economics degree programs (only 7 percent of the sample acknowledged plans to seek a graduate degree in economics), which explains the small advantage the sample has over the nationwide average on the economics GRE relative to the sample's large positive increment over nationwide averages on the other admissions tests.

The respondents were asked to evaluate the strengths and weaknesses of various attributes of their economics major programs. The results are tabulated in table 7, where the sum of the highest two ratings (out of five options) is reported for each program characteristic.

In general, the students seem pleased with the rigor of the curriculum and the teaching performance of their professors, over sixty percent rating both of these attributes as above average. They are less impressed by advising services, departmental administration, assurances of getting a job or into post baccalaureate degree programs and the breadth of course offerings. There are marked differences in the assessment of the various characteristics of the economics programs across types of institutions. Students at research and doctorate universities think they have a less rigorous curriculum, worse advising services, departmental administration and assurance of getting a job or into graduate school, but that they have wider course offerings and their professors are better researchers. Liberal arts college students, on the other hand, are very impressed with their professors as teachers, the rigor of their curriculum, advising services, and their assurance of getting a job or into graduate school, but think less highly of the research performance of their professors.

Table 7. EVALUATION OF ECONOMICS PROGRAMS BY STUDENTS

Characteristic of Program	Percentage of Students Rating Program Strong or Very Strong*			
	All Institutions n=1070	Research and Doctorate n=559	Comprehensive n=193	Liberal Arts n=318
Professors as Teachers	71.3	67.5	69.8	79.5
Rigor of the Curriculum	60.1	52.1	66.4	70.7
Introductory Economics Course	48.9	47.7	51.3	49.8
Professors as Researchers	46.4	56.4	36.9	36.2
Wide Course Offerings	39.8	43.8	32.8	37.7
Assurance of Getting a Job or Getting into Graduate School	38.0	31.0	43.5	47.6
Departmental Administration	35.7	29.5	35.4	47.4
Advising Services	34.8	27.2	37.4	47.2

*The response options were very weak, weak, average, strong, very strong, and not applicable.

The Determinants of Student Performance in Economics

There are many studies of student performance in economics courses (Siegfried and Fels) but relatively few are based on data encompassing more than a single institution. Here we are fortunate to have information on individual student characteristics and performance of students at a large number of different institutions. Therefore we estimated what, by this time, has become a standard regression model of student performance in economics courses.

Complete sets of data are available for students from 46 different schools using economics grade point average (GPA) and for 22 schools using the Economics Graduate Record Examination (economics GRE) as a measure of student performance. As explanatory variables we include the usual scholastic aptitude test scores, sex and race variables, as well as an indicator of whether the student had taken a high school economics course, and the number of college economics papers the student had been required to write.

The results are reported in table 8. The first regression reports the results of our attempt to explain variations in the economics grade point average, and the second and third regressions report our effort to explain variations in student performance on the economics GRE. Equation (2) includes a measure of the student's overall grade point average; equations (1) and (3) omit this variable. We interpret the coefficients of equation (2) as indicating the effect of the independent variables on economics performance, holding constant a student's overall academic talents. That is, equation (2) tells us how important the various independent variables are for performance in economics relative to overall performance. Equations (1) and (3) tell us how important

Table 8. THE RELATIONSHIP BETWEEN STUDENT CHARACTERISTICS AND ECONOMICS PERFORMANCE

		Dependent Variables			
Independent Variable	Mean (Standard Deviation) GPA Sample	Economics Grade Point Average[a] (1)	Mean (Standard Deviation) Economics GRE Sample	Economics Graduate Record Exam[b] (2)	Economics Graduate Record Exam (3)
Constant	---	1.4550	---	29.3260	204.9181
Overall Grade Point Average	3.18 (0.44)	omitted	3.19 (0.48)	83.2120** (6.78)	omitted
SAT: Verbal	590 (83)	0.0013** (6.21)	577 (82)	0.2933** (3.88)	0.3898** (4.36)
SAT: Quantitative	628 (81)	0.0017** (8.00)	635 (75)	0.1354* (1.72)	0.2540** (2.74)
Sex (1=female; 0=male)	0.37 (0.48)	0.0081 (0.24)	0.23 (0.43)	-33.4134** (-2.39)	-28.4493* (-1.69)
Race (1=non-white; 0=white)	0.04 (0.20	-0.1201 (-1.53)	0.04 (0.19)	-38.2442 (-1.42)	-62.6881* (-1.95)
High School Economics (1=yes; 0=no)	0.30 (0.46)	0.0080 (0.28)	0.34 (0.48)	3.5108 (0.31)	18.8661 (1.40)
Number of College Economics Papers of at Least Five Pages	4.77 (3.57)	0.0016 (0.33)	4.66 (2.51)	5.9682** (2.75)	4.9285* (1.89)
Institution Intercept Shift Variables	---	45 unreported coefficients	---	45 unreported coefficients	45 unreported coefficients
Coefficient of determination (corrected for degrees of freedom)	---	.221	---	.635	.471
Number of observations (students)	897	897	128	128	128
Number of institutions	46	46	22	22	22

t-ratios are in parentheses

* = significance at .05 level; ** = significance at .01 level

[a]Dependent variable mean = 3.22; standard deviation = 0.49.

[b]Dependent variable mean = 626; standard deviation = 84.

each independent variable is for performance in economics acting through its importance for general academic performance as well as its effect on relative performance in economics. It is useful for addressing the question: What is it that determines whether students will do well in economics without regard to whether they might do well in other disciplines also?[6]

An intercept shift variable (binary variable) is included for each separate institution to control for possible systematic differences in the levels of grade point averages or general talent of the students across schools.[7] The estimated coefficients for these variables are not reported.

So far as general performance in economics is concerned (equations (1) and (3)), both quantitative and verbal skills seem to matter. Women and non-whites appear to have a disadvantage in performing well on the economics GRE, but are not significantly lower than men and whites, respectively, in GPAs. High school economics courses do not appear to be much help to students. Writing college economics papers does not appear to make much difference for one's economics GPA, but does appear to produce higher scores on the economics GRE. This difference might occur because courses in which papers are required are graded tougher than others, or it may be that students with higher GPAs elect courses with term papers assigned, and these students already are doing sufficiently well in their grades that experience writing papers does not help them improve their grades very much. Writing three additional term papers, which is slightly more than the standard deviation of number of term papers, is associated with about 15 additional points on the economics GRE, a not insignificant increment.

The results are comparable for identifying those factors that give students a relative advantage in economics (equation (2)). Both verbal and quantitative skills seem to matter. This is consistent with the evidence that, in general, verbal skills are more important for students' performance in the introductory economics course (Siegfried and Fels, p. 937) and quantitative skills are more important for students' performance in graduate work in economics (Hansen, p. 51). Our results are between those of the introductory course and graduate program results, but then our measures of student performance are for college seniors, who are between introductory economics and graduate work in economics.

Women appear at a relative and absolute disadvantage in college economics (equations (2) and (3)). This is consistent with most of the research evidence. Women, however, generally learn no more nor less than men in college. Rather, the difference in their performance levels appears to already exist when they enter college and persists at approximately a constant level (Siegfried, pp. 7-8).

Women do not appear at a disadvantage in GPA achievement. There may, however, be a selectivity bias that effects this conclusion. If women are more likely to major in economics because the subject interests them any disadvantage they have in knowledge of economics may be partly offset by greater motivation.

Whites seem to score better than non-whites, although the difference is statistically significant only for the equation measuring absolute performance on the economics GRE (equation (3)).

The absence of a significant positive effect of high school economics on college performance is not startling. Most of the evidence

on the Head Start program for elementary school pupils, for example, concluded that the advantage such students had when they entered elementary school rapidly dissipated (Barnow and Cain, p. 195). If, here a high school economics course gives a college student an advantage, it does not appear to last throughout the four year college period.

Writing assignments appear to matter in economics. Given a set of college students, the more papers that they write, the better they do on the economics GRE. Indeed, each paper of more than five pages is associated with 5 additional points on the economics GRE.

Career and Future Education Plans

Students' plans to continue their formal education are reported in table 9. Eighty-seven percent of the students surveyed intend to continue their education beyond the baccalaureate degree in at least a year or two, although about 70 percent of the students intend to seek employment immediately after graduation (see table 10). There is a surprising similarity in career plans of students at different types of institutions. The fraction of students at liberal arts colleges who intend to continue their formal education immediately is slightly less than at the other types of schools, and of those who intend to pursue higher education, the fraction who will attend graduate (vis-a-vis professional) schools from the comprehensive institutions is remarkably high.

Of the students who plan to attend professional school, 61 percent seek a business degree, 25 percent will pursue a law degree, and 9 percent seek both a business and a law degree. No other professional

Table 9. PLANS OF SENIOR ECONOMICS MAJORS TO CONTINUE THEIR FORMAL EDUCATION

Response	Percentage of Students Responding			
	All Institutions	Research & Doctorate	Comprehensive	Liberal Arts
Number of students	1071	557	194	320
Do not plan to continue formal education	13.5	13.8	12.9	12.8
Plan to continue formal education immediately	33.7	36.4	34.0	27.8
Plan to continue formal education in a year or two	53.7	49.7	53.1	59.4
Of those who plan to continue their formal education:				
Plan to attend graduate school	26.2	24.2	36.8	23.1
Plan to attend professional school	73.8	75.8	63.2	76.9
Percentage attending graduate and professional school planning to continue in economics	15.3	14.7	22.2	12.2

Table 10. PLANS OF SENIOR ECONOMICS MAJORS TO SEEK FULL-TIME EMPLOYMENT IN YEAR AFTER GRADUATION

Response	Percentage of Students Responding			
	All Institutions	Research & Doctorate	Comprehensive	Liberal Arts
Number of students	1069	559	191	319
Will not seek full-time employment	29.2	32.2	23.6	27.3
Will seek permanent full-time employment	45.2	45.4	48.7	42.6
Will seek temporary full-time employment	25.6	22.4	27.7	30.1

field was elected by more than one percent of those planning to attend professional schools.

Of the students who plan to enroll in graduate schools, 58 percent expect to major in economics. No other field of graduate study accounts for more than six percent of the students planning to undertake graduate work.

The most common occupational goals of those students seeking full time employment are general management (33 percent), sales and marketing (12 percent), analyst (10 percent), researcher (6 percent) and economist (4 percent). Banking and finance is the most popular industry choice (34 percent), followed by "business in general" (8 percent) the computer industry (6 percent) and the insurance industry (4 percent).

The students expected to earn a median of $17,000 in their first year of full-time employment (regardless of when that occurs) and, in a world of no inflation, predicted their median earnings would be $54,900 twenty-five years later. This implies an expected real annual growth rate in earnings of 5.0 percent. The actual real annual growth rate in earnings for the cohort of 20-24 year olds starting in 1950 has been 4.6 percent for men and 2.8 percent for women. Weighting the growth rates by the fraction of men and women in our survey yields a historical real annual growth rate of 4.0. The people in our sample are apparently optimistic about the future growth rate in real earnings.

Summary

This paper reports the findings of a survey of 1080 senior economics majors from 48 representative colleges and universities taken in Spring 1981. The sample students are high academic achievers, caused by sample selectivity.

The students believe that the main goals of their undergraduate education are to develop the ability to think clearly and to do self-directed learning. Most of them majored in economics because of their interest in the subject and their view that an economics major provides them better employment opportunities.

An analysis of the students' performance reveals that both quantitative and verbal skills are important. Writing term papers appears to enhance achievement on the economics GRE. There is no discernible effect of high school economics courses on seniors grade point averages or economics GRE scores.

Almost all (87 percent) of the students in the sample plan to continue their education beyond the bachelor's degree, but over half intend to work full-time for a few years first. Three-quarters of those planning post-baccalaureate education will enroll in professional programs; two-thirds will seek an M.B.A. while one-third aspire to be lawyers. The large fraction of students (5 percent) planning graduate study in economics is probably a reflection of the selectivity bias in the sample.

FOOTNOTES

[1]The Sloan Foundation provided primary financial support for this project. Supplementary support was received from the JCEE, the AEA and the University Research Council of Vanderbilt University.

[2]See Siegfried and Wilkinson. That study reports on the number of economics major programs in the U.S., the characteristics of their students and faculty, requirements for the major, availability of special educational opportunities, course enrollments, and the effect of curriculum design on the choice of majors by students.

[3]Individual institutions may desire to survey their senior economics majors with the same instrument used to provide the baseline data contained in this report. A copy of the questionnaire is available on request.

[4]For information on the public use data tapes produced by this project, contact the Joint Council on Economic Education, 1212 Avenue of the Americas, New York, New York 10036.

[5]That survey was designed to assess the status of white and minority students and faculty in higher education institutions. It was distributed to all faculty at approximately 100 institutions, selected using a stratification scheme designed to provide a representative sample of colleges and universities.

[6]Estimates for a parallel equation to predict economics GPA that includes overall GPA are not reported because the disturbance term for the overall GPA is correlated with the disturbance term for the economics GPA, which would bias the resulting coefficients. An instrumental variables technique cannot be used to avoid this problem

because instruments that affect overall GPA are bound to also influence the economics GPA.

[7]No adjustment is made, however, for the possibility that the various independent variables may have different effects on performance at different schools.

REFERENCES

Barnow, Burt S. and Cain, Glen G., "A Reanalysis of the Effect of Head Start on Cognitive Development: Methodology and Empirical Findings," Journal of Human Resources, 1977, 12 (2), pp. 177-197.

Carnegie Commission on Higher Education, A Classification of Institutions of Higher Education, Berkeley, 1973.

Hansen, W. Lee, "Prediction of Graduate Performance in Economics," Journal of Economic Education, 1971, 3 (1), pp. 49-53.

Siegfried, John J., "Male-Female Differences in Economic Education: A Survey," Journal of Economic Education, 1979, 10 (2), pp. 1-11.

Siegfried, John J. and Fels, Rendigs, "Research on Teaching College Economics: A Survey," Journal of Economic Literature, 1979, 16 (3), pp. 923-969.

Siegfried, John J. and Wilkinson, James T., "The Economics Curriculum in the United States: 1980," American Economic Review, 1982, 72 (2), pp. 125-138.